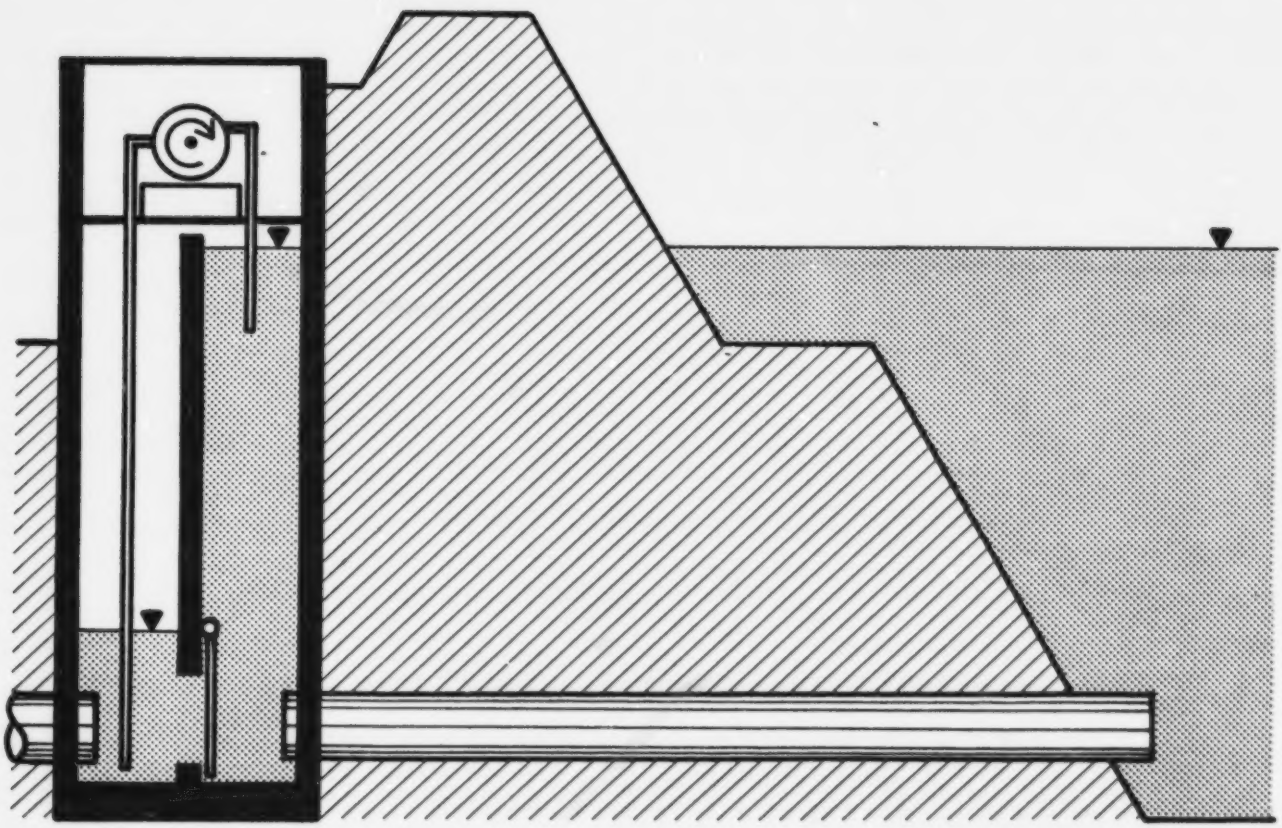
THE ANNUAL REPORT

OF THE

DYKING COMMISSIONER

•FOR THE YEAR ENDING DEC. 31, 1987•



SUBMITTED TO:

The Hon. JOHN PLOHMAN
Minister
Department of Natural Resources

SUBMITTED BY:

F. PENNER P. Eng.
Dyking Commissioner

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

March 30, 1988

File: 11.1.5

The Honourable John S. Plohman
Minister of Natural Resources
Room 118, Legislative Building
450 Broadway Avenue
Winnipeg, Manitoba
R3C 0V8

Dear Sir:

I have the privilege to submit, herewith, the Annual Report of the Dyking Commissioner as required under Section 15 of The Dyking Authority Act.

This report covers the appraisal of the Greater Winnipeg Dyking System and ancillary Pumping Stations for the 1987 calendar year, to determine it's adequacy to provide flood protection for the City of Winnipeg.

Please note that the Act does not require this report to be tabled in the Legislature.

Yours truly,

F. Penner, P. Eng.
Dyking Commissioner

Enclosure

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1 Acknowledgements

Evaluation of the adequacy of the dyking system is based mainly on reports provided by the staff of the City of Winnipeg and the University of Manitoba. Their co-operation in providing annual reports and technical advice is gratefully acknowledged.

2 The Dyking Authority Act of 1952

The Dyking Authority Act D110, passed in 1952, was intended to ensure that the dykes and pumping stations constructed subsequent to the 1950 flood were maintained in a state of readiness to combat future floods. In fact, the full title of the Act is *An Act to Provide for the Maintenance of Dykes and Pumping Stations in Greater Winnipeg.*

While authority and control over dykes and pumping stations was vested with the city or rural municipality in which they were situated, provision was made for the appointment of a Dyking Commissioner with powers to inspect dykes and pumping stations and to order work to be undertaken to maintain an integrated system of flood defences as well as to establish the location of the line of defence.

The Dyking Commissioner was required to "before the first day of April in each year, make to the Minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed".

3 Changes Since 1952

Several major changes have taken place since the passing of the Act in 1952.

1. Major flood control projects affecting the City of Winnipeg namely the Red River Floodway, Portage Diversion and Shellmouth Dam projects have been completed.

2. Urban development has taken place beyond the lines of flood defence established earlier.

3. The five cities and two rural municipalities subject to the Act have been replaced by a single city.

4. The Canada-Manitoba Flood Damage Reduction Agreement has produced an Interim Flood Risk Map designating Flood Risk Areas and Floodways in the City of Winnipeg and has defined certain criteria for developments dictated by flood levels.

4 Current Issues

These changes and other considerations have given rise to the following issues:

1. The flood defence lines as currently established need revision to recognize the reality of the Floodway and recent urban development.

2. The Dyking Authority Act needs to be updated in two general areas:

   - Its area of jurisdiction needs to be clarified. Specific issues are its application in the "additional zone", to the University of Manitoba, to dykes forming part of the Floodway and to provincial highways which may form part of the line of defense.

   - The standards for primary dykes need to be specified preferably by regulation under the Act.

3. In his 1985 report the Dyking Commissioner noted the last major flood fighting operation in the City occurred in 1966 and recommended a one or two day "extreme flood workshop" for staff from the City and Provincial Government Departments to ensure an awareness of the probability and nature of an extreme flood.

4. While the Dyking Commissioner considers the above issues to be important and to require action, he does not consider them of greater importance than the ongoing routine maintenance of pumping stations and gate chambers.

5 Current Action On Issues

The current status of action to resolve these and other issues is as follows:

1. The City is reviewing the Primary Dyking System for redesignations and possible extensions. Surveys of several redesignation areas and possible extensions have been completed. Plans are being prepared and will be submitted to the Dyking Commissioner for approval. A number of preliminary proposals have been reviewed with the Commissioner as noted in the City of Winnipeg report in Appendix C. However the pace of this work needs to be increased.

2. City staff have responded to the proposal for an extreme flood workshop by agreeing to recommend to the Board of Commissioners, the assembly of a steering committee. Some action on this issue is anticipated in 1988.

3. The City is working closely with the Forks Renewal Corporation to ensure that flood protection in the area is maintained and enhanced where possible.

4. The City has initiated a project to prepare updated maps of the primary dykes.

5. The City has prepared a pamphlet *The Dyke Behind Your Home Is Your Friend.* While this deals primarily with secondary dykes, it has some relevance to the primary dykes as well.

6. The current program to translate provincial statutes into the French language provides an opportunity to update the Dyking Authority Act. Hence the Department of Natural Resources will draft revisions which will be discussed with the City, the University of Manitoba and others as appropriate.

7. The City reports a letter of understanding outlining responsibility for the Turnbull Drive Dyke has been ratified. The dyke does not fall within the jurisdiction of the Dyking Authority Act.

6 Inspection of Facilities

The City and the University have ongoing inspection and maintenance programs.

I have been impressed with the degree of care and the associated costs which the City applies to its flood protection facility.

7 Reports by the City of Winnipeg and the University of Manitoba

A questionnaire was sent to the City and to the University requesting information for the purpose of preparing this report. A copy of the request and questionnaire is included in Appendix B. The replies to the questionnaire, included in Appendix C, indicate that inspections were carried out, and that necessary maintenance work was carried out. All facilities appear to be in satisfactory condition.

8 Operation of Pumping Stations and Gates

During the 1987 spring flows, 22 permanent pumping stations and 6 temporary stations were activated and 42 positive gates were closed. Details are included in the City report in Appendix C.

The City maintains and regularly updates a Flood Control Manual. A major revision is planned for 1988. The University maintains a similar manual.

It is ironic that the design and operation of the flood control system has achieved such a level of excellence that the public is largely unaware and hence unappreciative of this activity.

9 Additional Works Constructed

Primary dykes were constructed at the Nomand Park and River Pointe subdivisions in the St. Boniface - St. Vital Community. Repairs and improvements were made to a number of waste water outfalls.

10 Recommendations

It is recommended that:

1. City of Winnipeg complete their study of the revision and extension of the line of flood defence as soon as possible.
2. The City and the provincial Department of Natural Resources consider holding an Extreme Flood Workshop.
3. That the Dyking Authority Act be revised as appropriate.

11 Appendix A

City of Winnipeg Map - Showing District Boundaries,
Flood Defence Lines and Pumping Station Locations.

NORTH KILDONAN

EAST KILDONAN

WEST KILDONAN

WINNIPEG

ST BONIFACE

ST VITAL

JAMES

TUXEDO

FORT GARRY

JAMES AVE PUMPING STATION

END OF PIP NO 3 FILE NO 10-1-102B

START OF PIP NO 3 FILE NO 10-1-102B

END OF PIP NO 10-1-102A

START OF PIP NO 10-1-102A

END OF PIP NO 10-1-102

START OF PIP NO 10-1-102

4

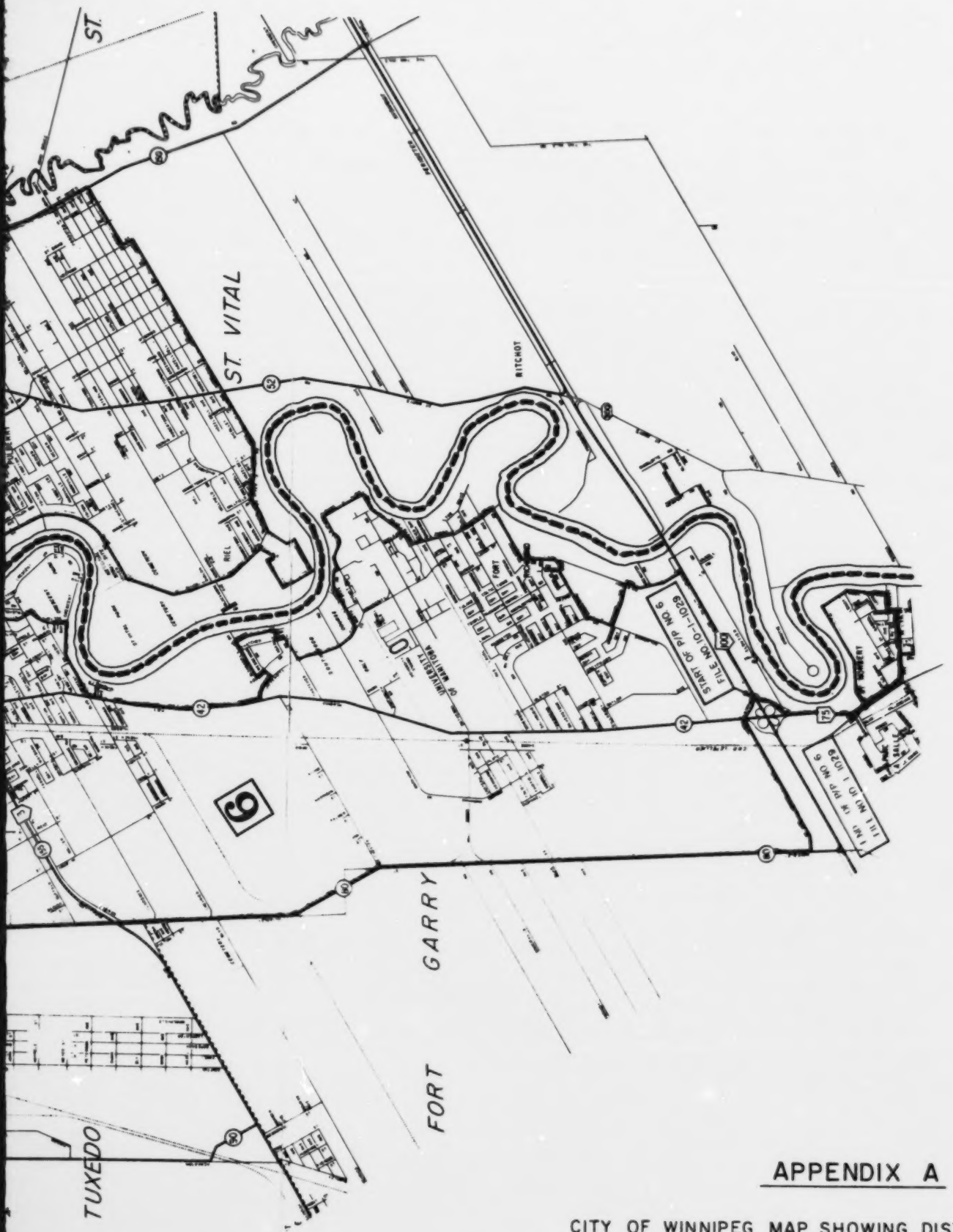
3

5

7

2

9



APPENDIX A

CITY OF WINNIPEG MAP SHOWING DISTRICT BOUNDARIES,
FLOOD DEFENCE LINES AND PUMPING STATION LOCATIONS.

FILE NO. 10-1-1039 C

12 Appendix B

Copy of Questionnaire Sent To:

The City of Winnipeg
The University of Manitoba

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

January 18, 1988

File: 11.1.5

W. D. Carroll
Director of Waterworks, Waste
and Disposal Department
1500 Plessis Road
Box 178 Transcona P.O.
Winnipeg, Manitoba
R3C 2Z9

Dear Sir:

Re: Dyking Commissioner's 1987 Annual Report

The Dyking Authority Act, Section 15, requires that:

> "The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist me in making this report I request that you supply me with a report on the dyking and pumping stations under your jurisdiction by 1988 02 28. For convenience, I am including a standard questionnaire similar to that used in previous years.

Please report also on the following items:

1. Your schedule to finalize the outstanding revisions to the line of flood defense.

2. Progress towards implementing an Extreme Flood Workshop.

3. Action you are taking to ensure an adequate line of flood defense in "The Forks" area now being developed.

Yours truly,

ORIGINAL SIGNED BY:

F. PENNER

F. Penner, P. Eng.
Dyking Commissioner

FP:bt

Attachment

QUESTIONNAIRE FOR THE ANNUAL REPORT ON THE PRIMARY DYKING SYSTEM WITHIN THE CITY OF WINNIPEG

1. For The Reporting Year

Please provide information concerning:

a) Difficulties and problems encountered,

b) Maintenance and repairs carried out,

c) New Sewer Outfall Gate Structures constructed,

d) Improvements and modifications carried out.

2. Proposed Plans For Future

Please provide information concerning proposed new structures, modifications to existing structures, and proposed improvements or additions to the dyking system. Also note any evaluation studies completed or underway in connection with the "Primary Dyking System".

Further, in view of the apparent and river bank stability problems, please provide information in regard to:

a) Evaluation of river bank stability in critical areas.

b) Monitoring of erosion of river banks in critical areas.

c) Any remedial works undertaken or completed in the reporting year.

3. Availability And Location Of Proposed Borrow Pits

Indicate changes if any in availability and location of proposed borrow pits in the reporting year.

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

January 18, 1988

File: 11.1.5

Mr. W. R. Wall
Associate Vice-President
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

Dear Sir:

Re: Dyking Commissioner's 1987 Annual Report

The Dyking Authority Act, Section 15, requires that:

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To assist me in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction by 1988 02 28. For convenience, I am including a standard questionnaire similar to that used in previous years.

Please include a report on the performance of the bank stabilization work adjacent to the Earth Sciences Building.

Yours truly,

ORIGINAL SIGNED BY:

F. PENNER

F. Penner, P. Eng.
Dyking Commissioner

FP:bt

Attachment

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Indicate changes if any in availability and location of proposed borrow pits in the reporting year.

13 Appendix C

Replies to the Questionnaire in Appendix B

From
The City of Winnipeg
And
The University of Manitoba

THE CITY OF WINNIPEG
WATERWORKS, WASTE, AND DISPOSAL DEPARTMENT
1500 PLESSIS ROAD • BOX 178 TRANSCONA P.O. • WINNIPEG • MANITOBA • R2C 2Z9

IN REPLY PLEASE REFER TO

March 28, 1988

Manitoba Department of Natural Resources
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

Attention: Mr. F. Penner, P. Eng.
Dyking commissioner

Dear Sir:

Re: Dyking Commissioner's 1987 Annual Report
Our File No. RF-1

In reply to your letter of January 18, 1988, please find attached the 1987 Flood Control Reports of the Waterworks, Waste and Disposal Department, the Operations Department, and the Streets and Transportation Department, with regard to Flood Pumping Stations and the Dyking System within the City of Winnipeg.

Yours truly,

W. D. Carroll
Director

PEAL:hl
Attachments

WINNIPEG
..where the New West begins.

FLOOD CONTROL REPORT

1987

The City of Winnipeg, Waterworks, Waste and Disposal Department is responsible for the Primary Dyking System and the flood pumping stations within the City of Winnipeg. The following report summarizes the operations of these facilities for the 1987 calendar year.

Throughout the year, all flood pumping stations were inspected once per week by the Collection Systems crews of the Waterworks, Waste and Disposal Department. All stations were checked for temperature, basement flooding and vandalism. All problems were repaired as soon as possible.

Commencing in the month of March, all stations were given a complete maintenance check to ensure that these facilities were ready for operation when required. This annual servicing includes:

i) lubricating and operating all positive gates on sanitary, storm and combined sewers;

ii) inspection of all wet well floats;

iii) lubricating and operating of all pumps and equipment within the station;

iv) inspection of all electrical main boxes, starter boxes and motors;

v) inspection of all high voltage transformers and equipment;

vi) inspection of automated control system, where installed.

The Red River reached a peak of 19.2 feet above City Datum at James Avenue on April 8, 1987. The river receded to normal summer level by April 28 and flood control operations were discontinued. Under these conditions it was necessary to activate 22 permanent flood pumping stations and 6 temporary flood pumping stations as well as closing 42 positive gates. Another eight outfalls were protected by flap gates. A summary of the 1987 flood control record is attached. During the period that the river was in flood stage, staff from the Waterworks, Waste and Disposal Department were assigned to shifts providing 24 hour coverage for all collection System and Flood Control works.

During the months of October and November, all flood pumping stations were winterized in conjunction with the routine weekly checks. The number of flood stations which have been automated remains at sixteen.

The Waterworks, Waste and Disposal Department in conjunction with the six districts of the Operations Department have continued in their efforts to upgrade the information provided in the Flood Control Manual.

This information was assembled in an addendum form for use in 1987 and it is anticipated that the entire manual will be completely revised in 1988.

Other 1987 issues pertinent to flood control include:

1.0 Extensions and Redesignations of the Primary Line of Flood Defense:

Extensions of the primary dyke (formal designation application pending) have been completed from Plaza Drive to Adamar Road, in the Normand Park development (in District 5), and in the Riverpoint Subdivision from the St. Amant Centre to Route 165 (also in District 5).

The Riverpoint Subdivision required the formal redesignation of the floodway by the Federal and Provincial authorities under the Canada Manitoba Flood Damage Reduction Agreements. A gate chamber was installed to control runoff, complete with temporary pumping facilities and the chamber was added to the City's "...Flood Pumping Stations..." operations manual.

Further to the Dyking Commissioner's January 18, 1988 letter, the department acknowledges that requests for formal redesignation are pending on several constructed candidate primary dykes for which the Commissioner has provided his approval-in-principle, notably: St. Mary's Road/Normand Park, St. Anne's Road, Plaza Drive, River Grove Subdivision, and now, Riverpoint Subdivision. However, with

the exception of St. Anne's Road, the dyking situation in 1987 kept changing as developments expanded and/or easement, inspection and as-built procedures were not complete. The department expects to make progress on this matter in 1988.

2.0 Extreme Flood Workshop:

At our meeting of September 24, 1986 with the Dyking Commissioner, the department agreed to recommend to the board of Commissioners, the assembly of a steering committee with representation from the Province and several City departments, which would report to the Dyking Commissioner. The committee's objectives would be to recommend objectives, format, resources and participants, and set a target date for the workshop. This initiative has not taken place to date.

The Commissioner expects the City to commit considerable resources to formulate, plan, and organize the workshop, which are not currently available. While the department feels that such an exercise may prove useful and may be prepared to commit resources for attendance, the demands imposed on the department's personnel resources to the extent proposed by the Commissioner would be difficult to accommodate. Nevertheless, the department expects to proceed with the initiative in 1988.

3.0 "The Forks" Development - Primary Line of Defense:

Further to the Dyking Commissioner's query, the department reports as follows:

3.1 On June 10th, 1986, the department initiated communication with Parks Canada to express our concern that their concept plan appeared to ignore the Primary Line of Defense. Their June 23, 1986 assurance that they would "...honour the primary line of flood defense..." is attached hereto.

3.2 The department contacted PCL and requested that they submit their construction drawings for our approval. The department reviewed the drawings and ensured that the proposed improvements would not adversely impact the Primary Line of Defense.

3.3 On February 15, 1988, the department met with D. S. Lea and Associates to review servicing concepts and was assured that the dyke would not be disturbed by their activities.

3.4 The department is presently in the course of reviewing a report titled "South Main Access Study" by Wardrop Engineering Inc. dated March 16, 1988, which addresses flood protection.

4.0 Primary Line of Defence Mapping:

The department is continuing a project initiated in 1986 to produce plan/profile maps of the City's 70 miles of primary dykes on aerial photo bases. Over 100 - "A1" drawings at 1:2000 scale will be produced. The drawings will update plans/profiles produced by the Provincial Water Control and Conservation Branch in 1967 in a modern, revisable format. The drawings will identify deficiencies in the dyking system and areas where the dyke must be realigned to keep pace with development. Preliminary engineering requirements, will be identified to address the deficiencies and capital works will be recommended, to be funded from the Regional Flood Protection account.

5.0 Secondary Dyke Pamphlet:

Further to a Council Adopted report from the Committee on Works and Operations recommending the distribution of an information package to property owners protected from high river levels by secondary dykes, the department has produced a pamphlet titled The Dyke Behind Your Home is Your Friend". The pamphlet, currently under review, provides the following:

.1 Information on the functional relationships of the Secondary/ Primary Dyking Systems.

.2 Incentive for the property owner not to remove or modify the secondary dyke by explaining that such removal would result in the reduction of flood protection to his property and increased flood fighting costs to the City.

.3 A channel for individuals to obtain further information regarding his personal flood defense situation.

Approximately 450 pamphlets were distributed to property owners in 1987. These owners were selected on the basis that their property included or had the potential to include a secondary dyke.

6.0 Redesignation of Kilkenny Drive Floodway Limit:

A letter dated July 2, 1987, from the Water Resources Branch apprised the department that the floodway limit along Kilkenny Drive north of the Perimeter had been shifted some 200 feet east in order to accommodate residential development between Kilkenny Drive and the Red River. The department was not apprised of the initiative and was not provided with an opportunity to review or comment on the redesignation.

7.0 Turnbull Drive Dyke, District 6 - 768 Association:

In March, 1987, the Letter of Understanding between the City of Winnipeg and the 768 Association, outlining the responsibilities of both parties and the extent of the services which the City shall provide, was unanimously ratified by all members of the Association.

PEAL/DGG:hl

1988 03 28

1987 FLOOD STATION ACTIVITY

Flood Stn. Activated	Gate Chamber	Gate Closed	Time	Date	River Elev.	Station Deactivated	Gate Opened	Time	Date	River Elev.
Laverendrye		X	14:15	87 03 29	7.5	X	X	09:45	87 04 28	7.1
Despins			9:15	87 03 31	8.9	X		09:30	87 04 27	7.5
	Fort Rouge Park	X	10:15	87 03 31	9.0					
	Armstrong Interconnection	opened	10:45	87 03 31	9.1		closed	13:30	87 04 27	7.5
Marion			9:30	87 04 01	9.7	Took the plate off		10:00	87 04 24	9.6
Jefferson		X	13:15	87 04 03	11.2	X	X	11:15	87 04 21	12.9
	Aubrey (Storm)	X	14:30	87 04 03	11.2		X	15:00	87 04 23	10.4
	Ruby Storm	X	14:15	87 04 03	11.2		X	14:00	87 04 23	10.4
Metcalfe			13:00	87 04 03	11.2	X		15:00	87 04 21	12.0
	Litz Place		15:00	87 04 03	11.2		X	09:00	87 04 21	12.9
	Lombard	X	12:00	87 04 05	13.3		X	10:20	87 04 21	12.9
	McDermot	X	12:45	87 04 05	13.3		X	15:00	87 04 21	12.8
Newton		X	13:45	87 04 05	13.5	X	X	10:15	87 04 21	12.9
	Burrows	X	14:30	87 04 05	13.6		X 2/3 up	09:45	87 04 22	12.6
	Eccles	X	12:00	87 04 05	13.3		X	11:30	87 04 21	12.9
Baltimore		X	12:15	87 04 05	13.3	X	X	11:00	87 04 29	6.7
Cockburn		X	12:45	87 04 05	13.3	X	X	14:00	87 04 24	9.5
Nager Drive		X	14:00	87 04 05	13.6	X	X	14:30	87 04 21	12.8
Hart		X	02:00	87 04 06	15.9	X	X	10:45	87 04 15	16.5
Bannatyne		X	22:30	87 04 05	15.5	X	X	10:35	87 04 21	12.9
	Spence	X	23:00	87 04 05	15.5		X	10:00	87 04 21	12.9
	Canora	X	23:45	87 04 05	15.5		X	11:00	87 04 21	12.9
	Douglas Park	X	12:15	87 04 06	15.5		X	11:15	87 04 24	9.6
Archibald U.P.		X	22:30	87 04 05	15.5	X	X	9:55	87 04 21	12.9
Linden		X	23:00	87 04 05	15.5	X	X	9:30	87 04 21	12.9
Syndicate			23:30	87 04 05	15.5	X		11:10	87 04 21	12.9
Galt		X	00:30	87 04 06	15.5	X	X	10:55	87 04 21	12.9
Boyle		X	01:15	87 04 06	15.6	X	X	14:00	87 04 15	16.5
Dumoulin		X	02:00	87 04 06	15.7	X	X	09:45	87 04 15	16.5
	Kildonan Park (Rainbow Stage)	X	09:40	87 04 06	16.7		X Both	10:30	87 04 22	12.6
	Turnbull Drive		10:30	87 04 06	16.9		X	14:00	87 04 21	12.8
	Water Avenue On Bridge	X	13:15	87 04 06	16.9		X	09:45	87 04 21	12.9
	Water Avenue R.R. Bridge	Closed at R.R. Sub.	13:25	87 04 06	16.9		Opened at River Br.	09:45	87 04 21	12.9
Polson		X	14:00	87 04 06	17.2	X	X	10:15	87 04 15	16.5
	Donald	X	17:20	87 04 06	17.2		X	16:45	87 04 19	13.5
	Chataway	X	18:00	87 04 06	17.4		X	10:30	87 04 24	9.6
St. James U.P.		X	07:50	87 04 08	19.2		X	13:00	87 04 13	16.8
	Pritchard	X	07:50	87 04 08	19.2		X	13:45	87 04 13	16.8
Colony		X	17:15	87 04 07	18.2	X	X	11:00	87 04 15	16.5
Assiniboine		X	18:15	87 04 07	18.2	X	X	13:15	87 04 15	16.5
River		X	18:45	87 04 07	18.2	X	X	13:45	87 04 15	16.5
Mission		X	08:00	87 04 08	19.2	X	X	09:15	87 04 15	16.5
	Hawthorne	X Reopened	10:00 15:15	87 04 08			X			
	Deer Lodge Place 2 Gates	X	09:15	87 04 08	19.2		X	13:10	87 04 21	12.8
	Willow at Carpathia	X	14:45	87 04 08	19.3		X	17:00	87 04 08	18.7
Ash		X	10:00	87 04 08	19.2	X	X	10:45	87 04 27	7.5
	Renfrew	X	10:45	87 04 08	19.2		X	11:00	87 04 24	9.5
	Doncaster	X	11:20	87 04 08	19.2		X	10:00	87 04 08	18.6

Parks Canada / Parcs Canada
457 Main Street
Winnipeg, Manitoba
R3B 3E8

ROUTE		
	ACTION	INFO
AP		
EHK		
WDC		
BMcG		
SEM		
JC		
	PEAL	
FILE		

4870-102-4-2
P-3-1

June 23, 1986

Mr. A. Penman
Director,
Works and Operations Division
Waterworks, Waste and Disposal Department
City of Winnipeg
Box 178 Transcona P. O.
Winnipeg, Manitoba
R2C 2Z9

Dear Sir:

This refers to your June 10th comments on the Forks site development plan regarding flood protection measures and site servicing requirements. While the plan drawing admittedly does not reflect specific flood protection measures, we are aware of our responsibilities in this regard pursuant to the Canada/Manitoba Flood Damage Reduction Program. Rest assured that detailed site design work, which we hope to be initiating shortly, will honour the primary line of flood defense currently in place. Detailed site design will also comply with the various limitations imposed on development within the 160 year flood level.

The detailed design phase of this project is being co-ordinated by Mr. John Arabsky of our Engineering and Architecture Division in this office. As his terms of reference for this phase are being prepared, he will no doubt be in touch with you regarding flood protection and site servicing requirements.

Yours sincerely,

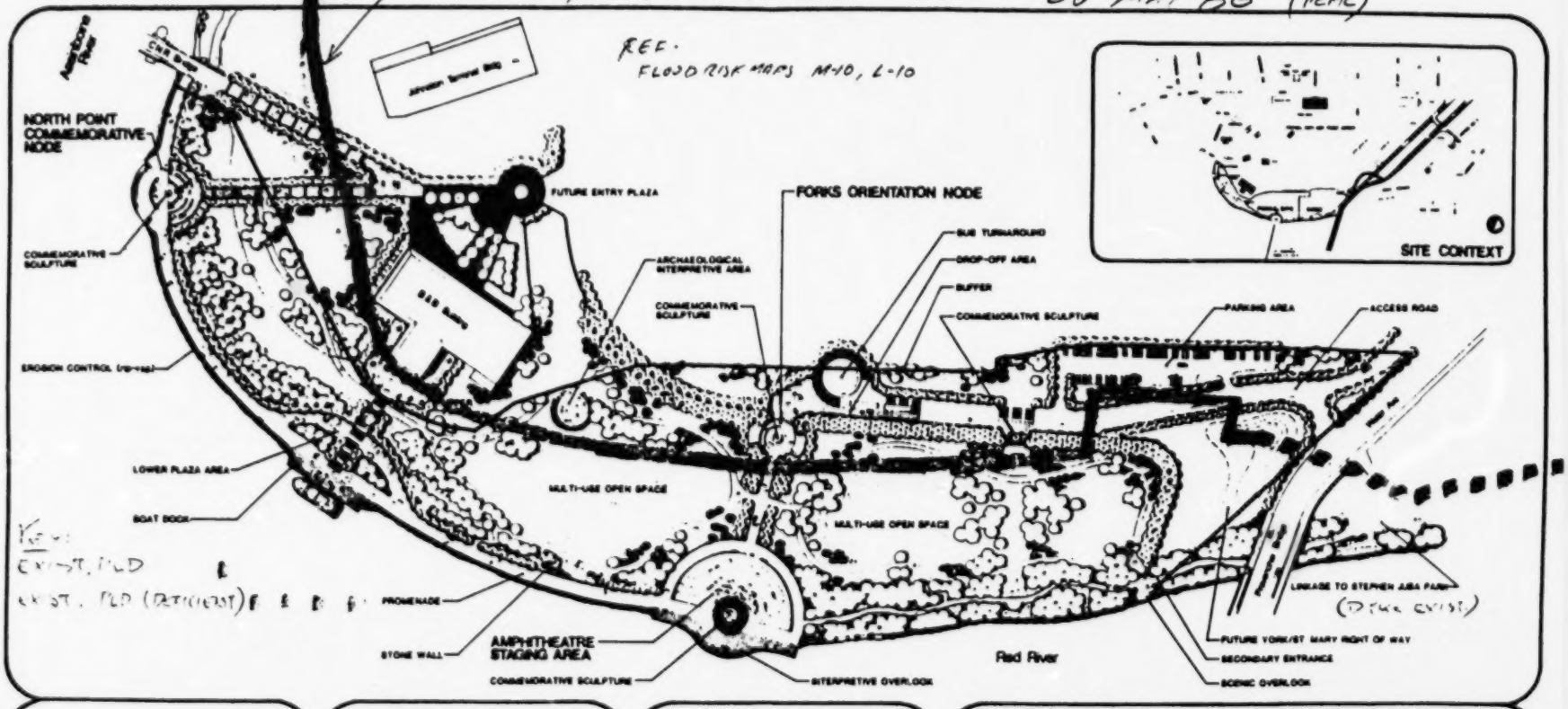
Tim Sookocheff
Chief, Management Planning

c.c. J. Arabsky
O. Kremers
R. Gillespie

THE CITY OF WINNIPEG.
THE WATERWORKS WASTE & DISPOSAL DEPT.
PRIMARY LINE OF DEFENSE
PLD RUNS ON R/R EMBANKMENT.

FILE: RE-1
P-3.1
28 MAY 86 (REAL)

REF.
FLOOD RISK MAPS M-10, L-10



KEY:
EXIST. PLD
EXIST. PLD (DEFICIENT)

1" = 200'

LOMBARD NORTH GROUP

THE FORKS

PARKS CANADA · CANADA MANITOBA A.R.C. AGREEMENT

MASTER DEVELOPMENT PLAN

FORM 5

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

To: Mr. P. Lagasse, P. Eng.
Waterworks, Waste and
Disposal Department

From: G.K. Stewart, P. Eng.
Director of Operations

RECEIVED
WATERWORKS W.D

Re: (Our file G 24-0-0)

Date: 1988 02 Feb 29 2 03 PM '88

RE: DYKING COMMISSIONER'S 1987 ANNUAL REPORT
- Your file No. RF-1

In response to your memorandum of February 3, 1988 regarding the above-mentioned subject, enclosed are the replies received from Districts 1 through 6 inclusive.

G.K. Stewart, P. Eng.

REP/mes
Attach.
cc D.A. Ross, P. Eng.

FORM S: 88 05

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

To: R. Phillips
Administrative Assistant
820 Elgin Avenue

From: G. A. Pekrul, C.E.T.
Supervisor of Technical Services
District #1

Re:

Date: 1988 02 17

Re: Dyking Commissioners 1987 Annual Report

The following is the District #1 reply to the questionnaire for the annual report on the primary dyking system for the 1987 calendar year.

1. a) No difficulties were encountered.

   b) A section of the existing brick sewer between the River Avenue flood pumping station and the Assiniboine River was replaced with monolithic concrete sewer.

      Repairs were completed to the outfall pipe at the end of Glasgow Avenue which consisted of re-attaching the outfall pipe, placing grouted stone rip-rap and minor slope regrading.

   c) No new sewer outfall gate structures were constructed.

   d) No improvements or modifications carried out.

2. a) Continued bank movements were noted along the Red River at Glasgow Avenue and the matter referred to the Streets and Transportation Department and the Rivers and Streams Committee.

      River Bank stabilization work is proposed to take place along the Assiniboine River at Spence Street in conjunction with a private development.

      Parks Canada began construction on the west bank of the Red River in the CNR East Yards Site of a riverbank park.

   b) Monitoring of the bank of the Red River along Churchill Drive east of Hay Avenue continued throughout the year.

   c) The remainder of the brick outfall piping from the River Avenue station to the Assiniboine River will be replaced in 1988 and the outfall at the Assiniboine River will be reconstructed.

3. There is no location within District #1 that could be used as a borrow pit.

G. A. Pekrul, C.E.T.

GAP/mj

ELECTRONIC MAIL
88 02-17

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

TO: R.E. Phillips,
A/Administrative
Assistant.

FROM: S. Winch, C.E.T.,
Technical Supervisor,
District #2 Operations.

RE: Dyking Commissioners
1987 Annual Report

DATE: February 17, 1988

The following is in reply to your memo of February 8, 1988.

1. **For 1987 Calendar Year**

   a) There were no problems or difficulties encountered.

   b) Maintenance work was completed on the Olive St. Outfall, and started on the Raquette St. and St. Charles St. outfalls.

   c) No new outfalls were constructed.

   d) No improvements or modifications were made.

2. **Proposed Plans for Future**

   Restoration to the Raquette St. and St. Charles outfall will be completed this year.

3. **Availability and Location of Proposed Borrow Pits**

   Borrow material is available from the District 2 Landfill Site and other City property and for projects (excess material from excavations).

"ORIGINAL SIGNED BY:"
(1988-02-17/hs)

S. Winch, C.E.T.,
Technical Supervisor,
District #2 Operations.

SW/hs

88.02.17

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

TO: Mr. R. Phillips,
A/Administrative Assistant

FROM: Mr. M.J. Winkler, C.E.T.,
Technical Supervisor
District No. 3

RE:

DATE: 1988 02 12

Re: Dyking Commissioner's Annual Report - 1987

Attached is the District's submission of the above referenced information.

Original Signed: "M. J. Winkler"

M. J. Winkler, C.E.T.,
Technical Supervisor

MJW/DJS/jos
Attch.

QUESTIONNAIRE FOR THE ANNUAL REPORT ON THE PRIMARY DYKING SYSTEM WITHIN THE CITY OF WINNIPEG

1. For The Reporting Year - 1987

   a) Difficulties and problems encountered:

      NIL

   b) Maintenance repairs carried out:

      Normal maintenance and repair works carried out on roadways on the surface of the dyke.

   c) New Sewer Outfall Gate Structures constructed:

      NIL

   d) Improvements and modifications carried out:

      NIL

2. Proposed Plans for Future

With regard to apparent erosion and riverbank stability problems:

a) From evaluation inspections carried out in 1984 by District No. 3, the following outfalls remained of general concern:

   Syndicate Street Outfall
   - Gully in front of most southerly outfall pipe - 42" diameter; North pipe - satisfactory

   Burrows Avenue Outfall
   - Gully in front of outfall pipe

   Jefferson Avenue Outfall
   - Gully in front of outfall pipe. Rip-Rap beginning to fall apart.

   Armstrong Avenue Outfall
   - Gully in front of outfall pipe - Rip-Rap falling apart.

b) Monitoring of erosion of riverbanks in critical areas:

   Monitoring of erosion of river banks in two critical areas will be carried out in 1988:

   i) St. John's Park - North of Anderson
   ii) Burrows Avenue outfall at the Red River

2. Proposed Plans For Future - Continued

c) Remedial works undertaken and completed in 1987:

A reevaluation of the bank stability at the Newton Avenue outfall showed that the failure had progressed to the point where a total collapse may occur. Additional funds were projected in the 1988 Capital Estimates in order to facilitate reconstruction of the sewer outfall. The Newton Avenue outfall reconstruction is scheduled for completion in April of 1988.

A District No. 3 submission for remedial works for the Armstrong Avenue outfall will be forwarded for inclusion in the 1989 Capital Estimates.

A new outfall at John Black Avenue and the Red River is proposed for 1988 in conjunction with the proposed North Inner Beltway.

3. Availability and Location of Proposed Borrow Pits

No change in availability and location of proposed borrow pits in 1987.

THE CITY OF WINNIPEG

ELECTRONIC MAIL
88-03-25

INTER-OFFICE MEMORANDUM

TO: G. K. Stewart, P. Eng.
Director of Operations

FROM: S. Dolhun, P. Eng.
District Engineer
District No. 4 Operations

RE: File No. S-40-10-02

DATE: 1988 02 24

RE: PRIMARY DYKING SYSTEM - DISTRICT NO. 4
1987 ANNUAL REPORT

1. For 1987 Calendar Year

   a) No difficulties or problems encountered.

      Repairs to the 2500 mm c.m.p. outfall on the Munroe Trunk Sewer were further deferred to 1988.

   b) Normal maintenance and repairs were carried out.

   c) No improvements or modifications carried out in 1987.

2. Proposed Plans for Future

   A proposed 2750 mm storm relief sewer outfall to the Red River in the vicinity of Kildonan Drive and Mossdale Avenue may be constructed in 1988 pending available funding.

   a) The District does not evaluate river bank stability. Any suspected problems are directed to the Streets and Transportation Department.

   b) Monitoring of erosion by the District is done primarily at outfalls as part of normal sewer maintenance inspections.

   c) No remedial works were undertaken in 1986.

3. Availability and Location of Proposed Borrow Pits

   At the end of 1987 the Northeast Landfill Site was closed and is no longer available as a source of material for raising the Primary Dyking System. However, sufficient material is available at the Ravelston Avenue Retention Pond (Transcona Low and High Storage Ponds).

"ORIGINAL SIGNED BY"
(1988 02 25/sm)

S. Dolhun, P. Eng.

BT/sm

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

TO: MR. R. PHILLIPS,
A/Administrative Assistant,
Operations Department.

FROM: MR. G.E. SEARS, C.E.T,
Technical Supervisor,
District #5.

DATE: 1988 02 24

RE: QUESTIONNAIRE FOR THE ANNUAL REPORT ON THE PRIMARY DYKING SYSTEM WITHIN THE CITY OF WINNIPEG - DISTRICT #5.

As requested, we are submitting our annual report on the Primary Dyking System within District #5.

G Sears

MR. G.E. SEARS, C.E.T.,
Technical Supervisor,
District #5.

GES/ll

Encl.

DISTRICT #5

PRIMARY DYKING SYSTEM QUESTIONNAIRE

I. FOR THE 1987 CALENDAR YEAR:

Item (a): Difficulties were encountered in the following areas:

- Kenwood Outfall
- Fernwood Outfall

Due in part to the extremely rapid drawdown of the water level in the Red River in the fall of 1987, major riverbank and outfall structure damage occurred. The newly refurbished Kenwood Outfall and Fernwood Outfall experienced extensive damage and bank movement. The Minnetonka Outfall experienced some lower bank failure but the outfall structure and upper bank remained stable.

Item (b): i) All culverts were inspected within the dyking system. Maintenance of isolated portions were carried out on an as-required basis.

ii) Extensive pipe repairs and upper bank stabilization were carried out in the spring of 1987 to the Kenwood Outfall and Fernwood Outfall. (These are the outfalls noted in Item a).

Item (c): i) A new land drainage sewer outfall and gate structure to the Red River was constructed at Victoria Crescent and Delmar Street. This outfall replaces an existing outfall at the same location.

ii) River Pointe Subdivision.

Item (d): Primary Dykes were constructed to approved designs as part of Development Agreements in:

i) Normand Park (North of Easy Street);

ii) River Pointe Subdivision (West of River Road, South of Bishop Grandin Boulevard, North of the St. Amant Centre).

II. PROPOSED PLANS FOR FUTURE:

Item a): Evaluation of Riverbank Stability in Critical Areas:

i) Acquisition of Property on Evans Street at the Seine River (no approval for 1988);

ii) The outfall at Tache and Dumoulin is experiencing some problems. Repairs may be required in the future.

iii) Study commissioned to evaluate the bank stability at St. Mary's Road & Lyndale Drive for snow dumping purposes.

Item (b): No monitoring of riverbank erosion was carried out by District forces in 1987.

Item (c): i) Remedial works were undertaken or completed in 1987 at the following locations:

- Kenwood Outfall
- Fernwood Outfall (Dunkirk Drive at Canoe Club)

ii) Remedial work is proposed for the following locations in 1988:

- Kenwood Outfall (failures as identified in I-Item a);
- Fernwood Outfall (failures as identified in I- Item a);
- Dumoulin/Tache Outfall

III. AVAILABILITY AND LOCATION OF PROPOSED BORROW PITS:

Proposed borrow pits are at the same locations as identified in previous years:

- Whittier Park (area North of CNR Highline)
- Provencher Boulevard East at Dawson Road (nominal)
- River Road opposite exit from St. Vital Park (nominal)
- St. Vital South Regional Park - East of Sandrington Road

Attached is a preliminary copy of the District #5 Atlas for "Primary Dykes". This Atlas indicates the basic deficiencies in the Primary Dykes as related to Flood Protection Level.

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

TO: Mr. R. Phillips
Administrative Assistant
Operations Department
820 Elgin Avenue

FROM: J. Friesen, P. Eng.
Asst. District Engineer
District 6, Operations

DATE: 1988 02 15

RE: PRIMARY DYKING SYSTEM WITHIN THE CITY OF WINNIPEG -
DYKING COMMISSIONER'S 1987 ANNUAL REPORT

As requested, we submit our annual report on the primary dyking system within District 6.

I. FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1987:

a) No problems or difficulties were encountered.

b) Normal maintenance and repairs were carried out.

c) No new sewer outfall gate structures were constructed.

d) Reconstruction of the existing control structure at Somerset Avenue and Riverside Drive was completed.

II. PROPOSED PLANS FOR THE FUTURE:

a) Major repair work will be carried out on the following outfalls - Somerset Avenue outfall and Riviera Avenue outfall. Work on these outfalls will be completed before the spring of 1988. The Harstone Road outfall will receive a liner in 1988. Work is also planned on the Dieppe Road outfall.

b) A new outfall is planned as part of the Bishop Grandin extension. The outfall would be constructed south of the existing bridge. The existing outfall at Glengarry Drive will remain in service as an overflow.

A new watermain is planned to complete the loop between South Drive and North Drive along public road which is located along the north side of St. John's Ravenscourt School.

c) No evaluation studies in connection with the "Primary Dyking System" are contemplated for the near future by this District.

d) No evaluations of riverbank stability in critical areas are planned by the District. Evaluation may, however, be undertaken by private interest groups in connection with proposed developments.

e) No remedial works on riverbanks were undertaken by the District in 1987. The District is not carrying out any program of monitoring erosion along the riverbanks, but will advise the Waterworks, Waste and Disposal Department if an erosion problem is discovered.

III. AVAILABILITY AND LOCATION OF PROPOSED BORROW PITS:

Following is a list of borrow pit areas which, with the exception of the area described in (1), lie inside the primary dyking system and should be accessible at river levels reached in 1950. Actual quantities of borrow pits are not known; however, sites are sufficiently large that adequate material should be available:

1) Northeast corner of Oakenwald Avenue and North Drive;

2) Park area adjacent to South Drive between Kebir Place and Holly Avenue;

3) Oakenwald School grounds - westerly extremity of Manchester Boulevard North and South;

4) River Lots 17 and 18 east of Waverley Street and north of Lot 16 Drain;

5) Waverley Street from De Vos Road to Bison Drive -- large open tracts of land on either side of Waverley Street.

J. Friesen, P. Eng.

HH/ah

FORM 5: 86 06

THE CITY OF WINNIPEG

INTER-OFFICE MEMORANDUM

To: P. Lagasse, P. Eng.
Waterworks, Waste &
Disposal Dept.

From: G.A. Knoll, P. Eng.
Streets Engineer
Streets & Transportation

RECEIVED
WATERWORKS &
FEB 19 10 35 AM '88

Re: Our File: SG-11

Date: 1988 02 18

RE: DYKING COMMISSIONER'S 1987 ANNUAL REPORT

The Streets and Transportation Department undertook no remedial riverbank erosion or stability works in 1987.

Erosion at the following locations has been addressed as noted.

Dominion Street End on the Assiniboine River	-	engineering design of remedial measures was undertaken and tendered and awarded. Remedial stabilization works are scheduled to commence in mid February of 1988 and be completed prior to spring run-off.
Granite Curling Club on the Assiniboine River	-	riverbank stability report was prepared by engineering consultants. Remedial riverbank stabilization works are to be undertaken upon the Granite Curling Club securing construction funding for same.
Stephen Juba Park and Alexander Dock Area on the Red River	-	a geotechnical engineering consultant has been retained to prepare a geotechnical report on riverbank stabilization in the area of the failure.
King's Park on the Red River	-	a geotechnical engineering consultant has been retained to prepare a geotechnical report on riverbank stabilization in the area of the failure.

GAK/cjk

THE UNIVERSITY OF MANITOBA

OFFICE OF THE PRESIDENT

Winnipeg, Manitoba
Canada R3T 2N2

January 29, 1988

Mr. F. Penner, P. Eng.
Dyking Commissioner
Water Resources Branch
1577 Dublin Avenue
WINNIPEG, Manitoba
R3E 3J5

Dear Mr. Penner:

Subject: Dyking Commissioner's 1987 Annual Report
Your File No. 11.1.5

With respect to your request of January 18, 1988, the following response will provide the information that you require from the University of Manitoba to prepare the Dyking Commissioner's 1987 Annual Report:

(1) 1987 Calendar Year:

(a) Difficulties and problems encountered: Partial river bank collapse was experienced at two storm sewer outfall locations due to faulty pipe joints:

(i) North east of storm sewer pumping station.

(ii) South of Agriculture Plant Science garages.

(Locations of partial river bank collapse are marked with "X" on attached plan.)

Both storm sewers have been repaired by Newdale Construction. Collapsed areas have been back filled with course rock, stabilizer and soil. Both locations have been checked until late November and no further bank movement was noticed.

(b) Maintenance and repairs carried out: Routine only, valve, bearings and all electric motors were checked for satisfactory operation in the storm sewer pump house.

(c) New sewer outfall gate constructed: None

(d) Improvements and modifications carried out: None

(2) Proposed plans for the future:

As indicated in our 1986 report, the two foot high earth dyke around the east, south and west side of the old Water Works Building will not be constructed. Oil levels inside old Water Works Building tanks have been lowered further and are now approximately 5 feet below surrounding building ground elevation. Oil will be removed as required and no future oil deliveries will be accepted for old Water Works storage tank filling.

Bank Stability:

At present, no evaluation studies are under way in connection with the "Primary Dyking" system. The most critical areas of the river bank are located on the south side of the Campus adjacent to McLean Crescent and on the north side at the new Geological Sciences (Wallace) Building.

Bank slippage in the southerly area has been reviewed at several intervals throughout 1987 and normal lateral movement of less than 5 centimeters was observed.

The bank adjacent to the Geological Sciences (Wallace) Building construction site was monitored by the University of Manitoba Physical Plant Department and no unusual bank slippage has been detected.

Minor backfilling work around the Geological Sciences Building has taken place during 1987.

(3) Availability and Location of Proposed Borrow Pits:

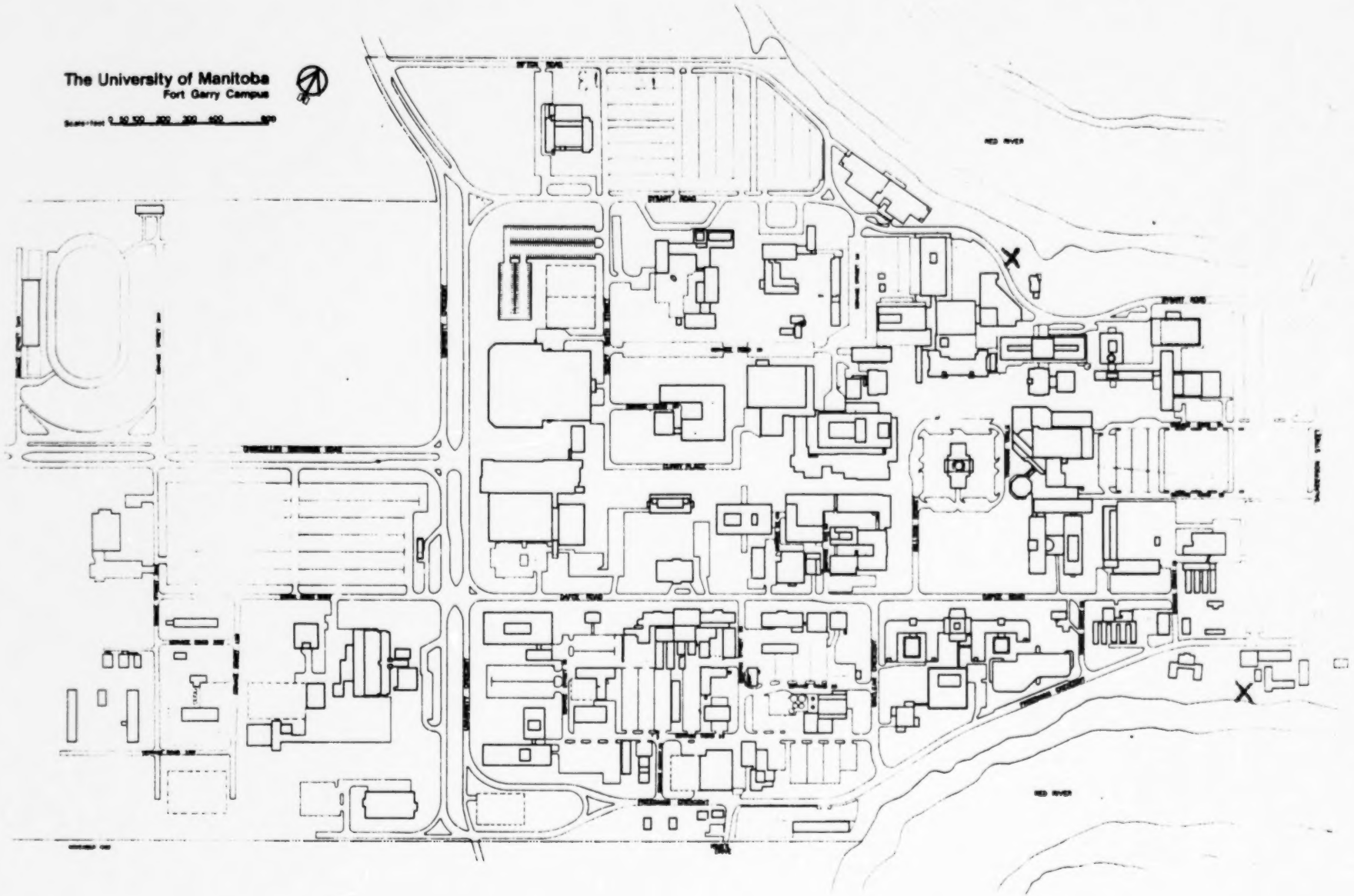
No changes are suggested in the availability or location of proposed borrow pit for 1988.

Sincerely,

W. R. Wall
Associate Vice President
(Administration)

WRW/md

cc: Mr. T. G. Falconer, Vice President (Administration)
Mr. H. Frank, Director of Physical Plant


The University of Manitoba
Fort Garry Campus